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Technology Systems Book



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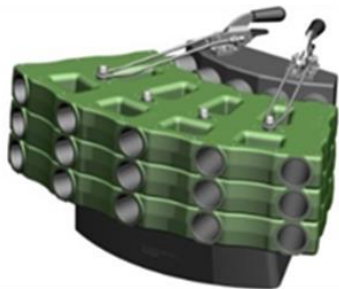
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Joint Combined Arms Air-Ground Maneuver Lead – MCoE

Experiment Objective #1: How do we enable small units to conduct joint combined arms air-ground maneuver to defeat enemy organizations and accomplish missions in complex operational environments?

Examples

- Combat vehicle anti-armor protection
- Combat vehicle protective armor weight reduction
- Manned–Unmanned Teaming
- Advanced rotorcraft
- Optionally manned aircraft
- Detection of threat observation measures
- Integrated sights/ common sensor strategy
- Improved long range security
 - Range, speed, payload, performance
- Improved team performance
 - Resilient Soldiers, adaptive leaders, cohesive teams
- Improved Soldier performance and overmatch
 - Sleep, nutritional supplements, biomarker exploration
 - physiological sensors, neuro-imaging, neuro-sensors
- Improved tactical casualty combat care
 - Endovascular stabilizing capabilities, blood products
 - hemorrhage control, burn wound repair, scar mitigation



CAPABILITY DESCRIPTION

- 40mm Smoke/Non-Lethal Grenade Launcher
- Light weight and low recoil modular design
- Installable on quick-release mounting plate
- Air burst munitions are effective in < 0.5 seconds
- Provides multi-spectral obscurant capability
- Multi-shot capability without reloading

CAPABILITY RELEVANCE

- Can be installed on any type of vehicle
- Easy to install and remove as needed
- Provides very fast LOS obscurant protection
- Effective against IR, EO, laser targeting systems
- Effective in very rugged and uneven terrain
- Effective even when vehicle is moving

CONTACT INFORMATION

American Rheinmetall Munitions
125 Woodstream Blvd., Suite 105
Stafford, VA 22556

POC: Roy McCallum

Tel: (703) 221-9295

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Sponsor – MCoE

CAPABILITY DESCRIPTION

Black Hornet® 3 airborne sensor is a game changing, next generation airborne Reconnaissance, Surveillance & Target Acquisition (RSTA) capability giving Beyond Visual Line of Sight (BLoS) sensor coverage. Extremely light weight airborne sensors
US DoD approved specific radio/communication system
Day/Night Vision live video feed, metadata & snapshot
Advanced Autopilot/ GPS & GPS denied functionality
Inherently safe and covert
TRL 6, expected TRL 8 Q2-17

CAPABILITY RELEVANCE

Black Hornet 3 should be mounted on a squad member/scouts personal combat vest. The capability should serve as a situational awareness asset/ “elevated binocular” for the squad, pre-strike and during maneuver in urban or built up terrain. The system will be available for both Live Fire and the Force on Force portions of the experiment. The system is inherent safe in operations, classified in NATO allied countries as CLASS ZERO UAV. The capability should be used in all weather and light conditions and the recommended number is one per squad.

CONTACT INFORMATION

FLIR Systems Inc.
27700 SW, Parkway Ave.
Wilsonville, OR 97070
www.flir.com

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Tel: (813) 300-6249
Email: arne.skjaerpe@flir.com

Sponsor – MCoE



5.56mm
RRTA
Projectile

CAPABILITY DESCRIPTION

- Cartridge case, primers (leaded and unleaded) and propellant are the same as those used in conventional ammunition
- Projectiles are made of solid brass.
- Specially designed fins on the bullets gradually add drag and prematurely force projectile out of the sky
- Cartridges are fired out of weapons that require no modifications. Use is completely transparent to user
- Tracer versions are under development with goal to trace up to the maximum match distance
- Both calibers are under development, 5.56 currently TRL6 and 7.62 TRL3

CAPABILITY RELEVANCE

- 5.56mm and 7.62mm Reduced Range Training Ammunition (RRTA) provide ballistic match with conventional ammunition but, on much shorter ranges than conventional M855/A1 and M80/A1 ammunition.

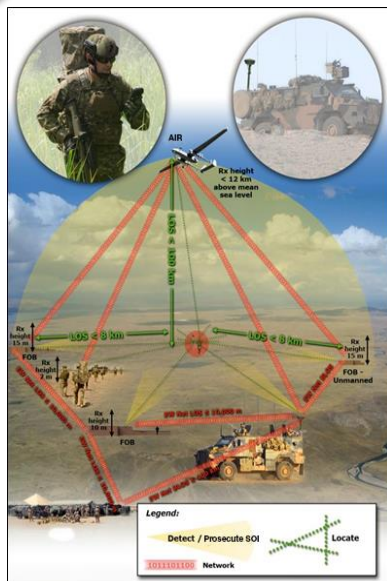
	5.56 M855	7.62 M80
Max range of regular rds	4200m	4500m
Max range of RRTA	950m	1900m
Ballistic match of RRTA	350m	500m

CONTACT INFORMATION

General Dynamics OTS Canada
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Repentigny QC J5Z 2P4 Canada
www.gd-otscanada.com

POC: Pierre Lemay
Tel: (450) 582-6361
Email: pierre.lemay@can.gd-ots.com

Sponsor – MCoE



CAPABILITY DESCRIPTION

The L3 Scout Sensor Target Detection and Communications System (S2TDC) provides the following capabilities:

- Detection and direction finding in large segments of the Radio Frequency (RF) Spectrum
- Line of Site (LOS) and Beyond Line of Site (BLOS) networking for processing geolocation data
- Dissemination of geolocation data to support cuing or target acquisition by UAVs and LRAS3

CAPABILITY RELEVANCE

The L3 Scout Sensor Target Detection and Communications System (S2TDC) addresses the following Military Problem (Technology Gaps)

- Lack of RF sensor coverage to detect, direction find and geolocate opposing forces.
- Lack of the ability to disseminate data to force assets such as UAVs and LRAS3 for cuing or target acquisition and engagement
- Lack of ability to disseminate real-time geolocation data beyond LOS to higher echelons.

CONTACT INFORMATION

L3 Technologies Linkabit Division

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San Diego, CA 92121

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Sponsor – MCoE

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CAPABILITY DESCRIPTION

The SVIT Helmet Mounted Display weighs 4.8 oz and mounts in an ENVG3 HMA and PA. The battery pack weighs 6.2 oz (Total 22.2 oz). The SVIT system wirelessly interfaces to the daytime HMD or to an ENVG-III (AN/PSQ-39) and a FWS-I for heads-up SA and Rapid Target Acquisition in day or low-light situations.



CAPABILITY RELEVANCE

SVIT improves situational awareness with icons and graphics that are visible within the user's field of view (FOV) and with the Nett Warrior (NW) end user device (EUD) by using a see-through helmet mounted display or the ENVG III (AN/PSQ-39), in limited visibility. SVIT improves lethality with the Rapid Target Acquisition function providing boresighted weapon sight imagery within the user's FOV. Four integrated buttons are used to control the device, or voice activation using a boom microphone. The SVIT system reduces the need for the user to look down at the EUD, and improves lethality and survivability with remote weapon sight imagery.

CONTACT INFORMATION

NVESD

10221 Burbeck Rd
Fort Belvoir, VA 22060

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Sponsor – MSCoE

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CAPABILITY DESCRIPTION

The SVIT Helmet Mounted Display weighs 5.5 oz and mounts in an ENVG3 HMA and PA. The battery pack weighs 7.1 oz (Total 24.3 oz). The SVIT system wirelessly interfaces to the daytime HMD and the FWS-I for heads-up SA and Rapid Target Acquisition.

CAPABILITY RELEVANCE

SVIT improves situational awareness with icons and graphics that are visible within the user's field of view (FOV) and with the Nett Warrior (NW) end user device (EUD) by using a see-through helmet mounted display. SVIT improves lethality with the Rapid Target Acquisition function providing boresighted weapon sight imagery within the user's FOV. A four button body controller is used to control the device, or voice activation using a boom microphone. The SVIT system reduces the need for the user to look down at the EUD, and improves lethality and survivability with remote weapon sight imagery.

CONTACT INFORMATION

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Sponsor – MSCoE

**CAPABILITY DESCRIPTION**

Weight: - Aircraft: 1.2 lbs.

GCS: 1 lb EUD & VSM hand controller

Size:

- Aircraft (stowed): 9.75 x 16.75 x 3.5 inches

- GCS: 10 x 7.5 x 4.5 inches

Range: LOS 1000-3000 meters, Video/C2 AES 256

Speed: Hover to 35 mph

Endurance: Up to 30 min, 45 min with mission battery (payload & wind dependent)

Service Ceiling: 12,000 feet MSL

Wind Station Holding: <30 mph

CAPABILITY RELEVANCE

Currently, tactical formations lack organic, robust, cost effective Intelligence, Surveillance, and Reconnaissance, Network Extension, and stand-off CBRNE capabilities that enable full spectrum operations during hours of limited visibility, in adverse weather, or in dirty battlefield conditions. Units must rely on non-organic assets to enhance force protection, and mitigate operational risk. This results in loss of critical information in the Ground Force Commander's decision making process.

CONTACT INFORMATION

Physical Sciences Inc.

20 New England Business Center

Andover, MA 01810

www.psitactical.com

POC: Mike Mackiewicz

Tel: (978) 802-5411

Email: mmackiewicz@psitactical.com

Sponsor – MCoE



CAPABILITY DESCRIPTION

Weight: - Aircraft: 2 lb (no battery)
 - GCS: 1 lb EUD & VSM hand controller
 - Field: 12 lb (1 aircraft, 1 VSM, batteries)
Size - GCS: 11 x 7 x 4 in. – Aircraft 12 X 20 X 4.3 in.
Range: LOS 1500 – 3000m – Video/C2 AES 256
Speed: Hover to 35 mph
Stowage: Waterproof case, 2 aircraft, 1 VSM, batteries and spares
Endurance: Up to 30 min., 45 min. with mission battery (payload & wind dependent)
Service Ceiling: >12,200 feet MSL
Wind Station Holding: >30 mph

CAPABILITY RELEVANCE

Currently, tactical formations lack organic, robust, cost effective Intelligence, Surveillance, and Reconnaissance, Network Extension, and stand-off CBRNE capabilities that enable full spectrum operations during hours of limited visibility, in adverse weather, or in dirty battlefield conditions. Units must rely on non-organic assets to enhance force protection, and mitigate operational risk. This results in loss of critical information in the Ground Force Commander's decision making process.

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Sponsor – MCoE



CAPABILITY DESCRIPTION

Weight: Aircraft: < 200 grams
(accessory and battery dependent)
System (field deployment kit): < 3 pounds
Size: Aircraft (stowed): 7.5 x 7.5 x 2.5 inches
System (field deployment kit): < 150 in3
Range: LOS, ~ 650 to 1000 meters, Video/C2 AES 256
Speed: Hover to > 20 mph
Endurance: 15 to 20 minutes (battery dependent)
Service Ceiling: 12,000 feet MSL
Wind Station Holding: 20 mph

CAPABILITY RELEVANCE

Currently, tactical formations lack organic, robust, cost effective Intelligence, Surveillance, and Reconnaissance, Network Extension, and stand-off CBRNE capabilities that enable full spectrum operations during hours of limited visibility, in adverse weather, or in dirty battlefield conditions. Units must rely on non-organic assets to enhance force protection, and mitigate operational risk. This results in loss of critical information in the Ground Force Commander's decision making process.

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Sponsor – MCoE



CAPABILITY DESCRIPTION

High strength, lightweight evacuation litter/stretcher

- Less than 8 lbs (3 kg) total carry weight
- Strong: Carries over 1,100 lbs (400 kg)
- Compact: Stows to 19" x 9" x 5.5" Deploys to 80" x 23" x 6" high. (203 cm x 58 cm x 15 cm)
- Tough: Field tested in the harshest conditions including sand, mud, dirt, and extreme temperatures.
- Fast: Unfolds in less than 25 seconds
- Maintainability: The *REEL* can be field-stripped and parts/bed exchanged with no tools. No periodic maintenance, lubrication or cleaning needed.

CAPABILITY RELEVANCE

- Reduces Soldier load from 14 lbs to 8 lbs
- Reduces stowed carry volume from 1 ft³ to 0.5 ft³
- Designed to meet or exceed Joint Enroute Care Equipment Test Standard (JECETS) requirements for strength, crash-worthiness (Current systems do not survive)

CONTACT INFORMATION

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Sponsor – MCoE



CAPABILITY DESCRIPTION

- MSC integrates radar and EOIR sensors to provide rapid detection, identification, classification and tracking of individual soldiers and vehicles
- Operates under a range of conditions including daylight and darkness as well as rain, smoke, haze and dust
- Provides 360 degree coverage allowing monitoring of an area in excess of 500 km²
- Tracks in excess of 100 targets simultaneously on a situational map with targets referenced to GPS coordinates

CAPABILITY RELEVANCE

- MSC provides the Maneuver Force dynamic and persistent Situational Awareness
- MSC allows pinpoint direction of an optimal mix of combined forces to ensure overmatch
- Deployed at company level with 1 – 2 MSCs assigned to each
- Future capability includes network integration of MSC to allow hostile force location dissemination in support of combined air-ground maneuver

CONTACT INFORMATION

Telephonics Corporation

815 Broad Hollow Road
Farmingdale, NY 11735

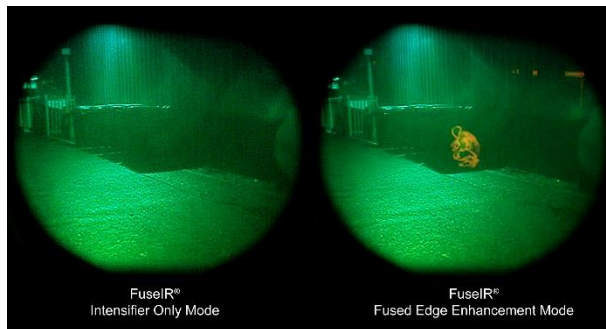
www.Telephonics.com

POC: Paul Smith

Tel: (631) 755-7368

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Sponsor – MCoE



CAPABILITY DESCRIPTION

Fused Image intensifier and Long Wave IR Thermal in helmet mount monocular.

- Runs on 2xAA batteries.
- Lighter than current fielded systems.
- High performance 16mm INTENS image intensifier.
- Shutterless 384x288 Thermal image (50Hz).
- VAS shroud interface.
- Intensified, fused and thermal modes of operation
- Simple scroll wheel interface

CAPABILITY RELEVANCE

Conventional Night vision is limited in performance in urban environments due to high contrast (lighting) or low light (building entry / hostage rescue). Fused systems provide improved situational awareness and target recognition in all lighting/nighttime conditions resulting in superior capabilities compared with conventional systems. Extended response of Intensifier allows detection of a wider range of battlefield lasers.

CONTACT INFORMATION

Thermoteknix Systems Ltd
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Cambridge CB25 9QR, England
<http://www.thermoteknix.com>

POC: Alistair Brown
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Email: a.brown@thermoteknix.com



CAPABILITY DESCRIPTION

Provide vital survivability information to vehicle crew by producing reliable warning that a laser threat has illuminated the vehicle. These systems detect laser rangefinders, designators, and beamrider missiles. The LWS can also be integrated with on board countermeasure systems such as smoke, on board lasers, and active protections systems.

Key Technical Characteristics:

VVR-3/S (+/- 18° AOA)
- .19ft³, 13lbs, 17W

AN/VVR-4 (+/- 1° AOA)
- .39ft³, 22lbs, 45W

CAPABILITY RELEVANCE

The United States Army is currently the only major ground combat force in the world that does not have laser warning systems as part of the maneuver force. This has been a technology gap since ORD was approved in 1994 for this technology.

This technology meets 2018 Objective #1: Specifically Combat vehicle anti-armor protection and 2017 Objective #1: Specifically, Preemptive Threat Detection and Identification

CONTACT INFORMATION

UTC Aerospace Systems

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Danbury, CT 06810

www.utcaerospacesystems.com

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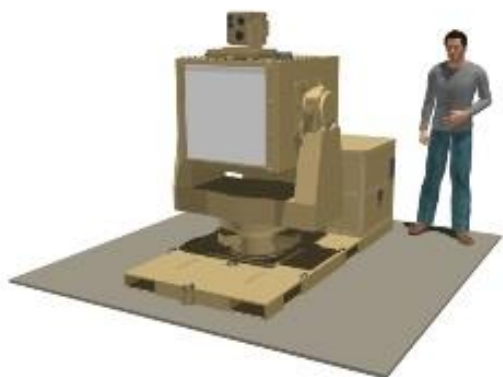
Sponsor – MCoE

Small Unit Maneuver Support Lead – MSCoE

Experiment Objective #2: How can Maneuver Support capabilities further enable the Maneuver Force?

Examples

- Improved chemical/biological decontamination of personnel, equipment, and vehicles
- Terrain shaping
 - Hand-emplaced by non-MOS specific forces
 - Ottawa Accord-compliant
- Collection and analysis of forensic data and material
- Analysis of geospatial data
 - Improved information and display on NETT Warrior
- Breach or reduce obstacles in-stride
 - Employment by non-MOS specific forces
- Improved threat/hazard detection capability on robotic platforms
 - Chemical, biological, IED, human



SS-ADT "Skid Plate" Gimbaled Demonstrator

CAPABILITY DESCRIPTION

Solid State Active Denial Technology (SS-ADT) is a Nonlethal, counter-personnel, directed energy system that projects a focused beam of millimeter waves to induce an intolerable heating sensation just below the surface of the skin on targeted personnel. This nonlethal effect produces a repelling effect against individual or group targets without causing permanent injury.

CAPABILITY RELEVANCE

- Suitable for riot control, crowd dispersal, convoy and checkpoint protection, deterring and/or degrading suspicious behaviour, perimeter and installation security with the ability to stop, deter and turn back an advancing adversary, providing an alternative to lethal force.
- Increases soldier survivability by determining intent of potential threats at stand-off

CONTACT INFORMATION

ARDEC

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Picatinny Arsenal, New Jersey 07806-5000
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POC: Jody South

Tel: (301) 609-0317

Email: Jody.South@Navy.mil

Sponsor – MSCoE



CAPABILITY DESCRIPTION

- 1) CTNLS is a non-lethal ballistic weapon/munition that is small enough and light enough to use as a modular accessory on the M4. It can also be fired as a standalone non-lethal pistol.
- 2) When mounted on the M4, CTNLS provides the soldier with rapid transition between lethal and non-lethal fires.
 - a) Lethality is maintained at current M4 level.
 - b) Non-Lethal capability extended beyond 12 gauge, 40mm and FN303 capability.
- 3) When used as a standalone pistol the soldier's fire are limited to non-lethal only.

CAPABILITY RELEVANCE

CTNLS: Lighter, Smaller, More Capable

- Reduced load on the soldier, entire kit < 3 pounds
- Total size of kit comparable to M9 pistol kit
- Greater first round probability of hit, most notable improvements are between 30 and 100m.

Present Inventory “Non Lethal Capability Sets”

- 3 weapons, 12 munitions needed to effect point fires to 70m: Expensive and Logically Burdensome.
- No Weapon with ammunition < 3 pounds.
- No individual weapon to effect fires beyond 70m, only vehicle mounted area munitions.

CONTACT INFORMATION

BML Tool & Manufacturing Corp.

67 Enterprise Drive

Monroe, CT, 06468

<http://accurate-mag.com>

POC: Vince Battaglia

Tel: (203)-451-5194

Email: vinb@bmltool.com

Sponsor – MSCoE



CAPABILITY DESCRIPTION

Bandolier is a lightweight terrain conforming clearing charge containing 2400gr of RDX and PETN per linear foot, which results in relative effectiveness (RE) factor 24% greater than that of traditional C-4 explosives. The 15-lb system is pre-packaged in stand-alone 5ft and 10ft modules, with an overall charge length of 35ft. A unique explosives hinge encourages optimal blast energy transfer to the ground or target area, while a container sock provides mechanical stability so it can be dragged out or tossed during deployment. Quick connection on both ends of each module permit both cross-leveling of Bandolier throughout a squad/team as well as rapid reconsolidation to create charges of any length.

CAPABILITY RELEVANCE

The Bandolier explosive charge can be rapidly employed across a range of Soldier tasks. The Bandolier can be used to clear paths through physical and explosive obstacles including AP minefields and protective wire. Bandolier's modular design enables flexible application to a range of breaching and demolition roles. The Bandolier is carried by the dismounted Soldier to provide increased mission capability and speed at a significant weight reduction over traditional "man-portable" path clearing systems.

CONTACT INFORMATION

Critical Solutions International

2284 Clements Ferry Road
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POC: Jacob Hohman

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Sponsor – MCoE / MSCoE



CAPABILITY DESCRIPTION

The MV-4 is a remotely operated, tracked platform with front and rear, multi-role tool attachments capable of performing a full range of assured mobility functions. The system's resistance to small arms and blast effects allows for remote employment in high-threat environments. Digging and lifting power offer deep-buried threat interrogation as well as rapid obstacle emplacement and reduction. Weighing only 15,000 lbs with prescribed front and rear tool attachments, the system is capable of sling-load transportation, making it ideal for rapid deployment to areas where traditional, single-role engineering systems are restricted.

CAPABILITY RELEVANCE

Maneuver units often rely on engineer support and equipment reduce obstacles. Obstacles can be overwatched or tied into explosive threats. These risks increase a unit's exposure and time on target. Other basic tasks, like digging fighting positions or digging up deep-buried targets, are often executed by hand. Such effort reduces a unit's efficiency and fatigues personnel. The MV-4 offers an easily transportable, multipurpose, engineering asset that only requires a single operator, increasing unit efficiency and reducing exposure to threats or high risk environments.

CONTACT INFORMATION

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Tel: (843) 800-0033 x167

Email: jacob.hohman@c-s-i.com

Sponsor – MSCoE



CAPABILITY DESCRIPTION

- Multi-purpose, multi-projectile less lethal launcher
- Effective range of 0 to 50 meters
- Similar operation/function as standard M16A2/M4 platform
- Can utilize both shaped VXR and round projectiles
- Accepts standard M68 Close Combat Optic
- Kinetic impact from 13 to 30 joules
- 10 and 15 round magazines
- Weight 6.2 pounds
- Can utilize high pressure air
- PepperBall fielded with State, Federal Police, CBP, FBOP, US Coast Guard

CAPABILITY RELEVANCE

- Provides soldiers with the ability to impact threats to route and convoy operations out to a distance of 50 meter with less lethal force
- Integrated disposable power source
- Will improve soldier performance by providing options in platform similar to M16A2/M4 platform/ease of operation
- Can remove potential obstacles while on route (vehicles, personnel)

CONTACT INFORMATION

United Tactical Systems, LLC
 28101 Ballard Drive, Unit F
 Lake Forest, Illinois 60045
www.pepperball.com

POC: Scotty Wylie
 Tel: (904) 631-7051
 Email: swylie@pepperball.com

Sponsor – MSCoE

Enhanced Air – Ground Operations Lead – FCoE

Experiment Objective #3: How do fires forces enable small units to execute joint combined arms air-ground maneuver to defeat enemy organizations and accomplish missions in complex operational environments?

Examples

- Counter-unmanned aerial systems (C-UAS)
 - Detection, identification, defeat
- Target acquisition
 - Precise, remote
- Enhanced call for fire
- Electronic detection and identification

**CAPABILITY DESCRIPTION**

The Vigilant Drone Denial System is a lightweight, handheld, self-contained, battery operated drone denial system. The Vigilant Drone Denial System provides warfighters with a protected airspace ranging from 500 meters to over 1 Kilometer in radius and altitude of protected airspace. The Vigilant Drone Denial System creates an invisible 'no fly zone' for drones, protecting personnel, assets and strategic locations from being attacked, accessed or monitored by drone activity.

CAPABILITY RELEVANCE

The Vigilant Drone Denial System is extremely easy to use, and can be deployed by a single operator. The system can be used by warfighters on foot patrol, by vehicle operators for convoy protection, and by FOB or other strategic locations requiring a 100% secure airspace that will deny any commercial or DIY type drone access to the protected airspace.

CONTACT INFORMATION**Federal Resources**

235-G Log Canoe Cir
Stevensville, MD 21666

Federalresources.com

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Sponsor – MCoE

**CAPABILITY DESCRIPTION**

Man wearable tactical system which identifies and locates hostile fire, detects and tracks Small UAS threats and can display friendly forces, which enables coordinated maneuver and targeting scenarios to protect the warfighters. GWACS operates in both single sensor and mesh network fully distributed mode. Probability of Detection: > 95%, Azimuth Error: $\pm 3.5^\circ$, Range Error: <10%, Storage of over 3000 events, zero false positives. Use of a stimulator enhances live training with the system.

CAPABILITY RELEVANCE

Reaction to unanticipated hostile fire is critical. GWACS GDS, in less than one second, classifies and locates hostile fire in open, urban and other complex terrain and conditions. Proliferation of small UAS also pose a threat. The mesh netted acoustical system with a sophisticated classifier allows the GWACS system to detect and track small UAS providing situational awareness to the warfighter. Live training is enhanced using a stimulator to enable the system to report a hostile shooter or shooters locations.

CONTACT INFORMATION

GWACS DEFENSE INC
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Jenks, OK 74037
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POC: Shel Jones
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Sponsor – MCoE

Small Unit Sustainment Lead – SCoE

Experiment Objective #4: How do we provide the capability to extend endurance and operational reach, increase operational readiness, reduce demand, and execute responsive sustainment to widely dispersed units?

Examples

- UAS – Micro resupply pod (5-25 lb payload)
- UAS logistical resupply (>25 lb payload)
- Water from air capability
- 3D printing or additive manufacturing

SA-200 Weasel



CAPABILITY DESCRIPTION

SA-200:

- Autonomous VTOL UAS
- Max Take-Off Weight (MTOW) of 120lbs
- Payload capability of 25lbs
- Mission radius of up to 70miles
- Endurance of up to 2.5 hours
- Operates on Heavy Fuel (Jet A-1, JP5, or JP8)
- BLOS operation via preprogrammed waypoints, including automated landing and shutdown
- Low logistics footprint (1 Operator / 1 Maintainer)

SA-200, GCS (laptop in case), antennas all fit in HMMWV sized vehicles

CAPABILITY RELEVANCE

The SA-200 is a multi-mission VTOL platform that can provide a small unmanned capability for assured resupply. It is a potential solution for Forward Support Company (FSC) operations in support of a maneuver battalion or below (or even pushed down/organic to a Maneuver Company), providing subordinate units with autonomous in-stride/emergency resupply capabilities current unavailable to the warfighter. The additional capability to employ multiple collaborating UAS (including the SA-400 - separate WP), using custom software, provides a scalable resupply capability with increased survivability. AWFC 12,16, and 20

CONTACT INFORMATION

Dynetics (integrator) with SCION UAS (aircraft provider)

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Huntsville, AL 25806

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Email: gary.brown@dynetics.com

Sponsor – AVCoE & SCoE



CAPABILITY DESCRIPTION

The DayOne Waterbag is a lightweight reusable fire-team sized water treatment device employing static water purification techniques. It is designed for field use by US military personnel and in military relief ops following major disasters.

The process uses the P&G flocculant/disinfectant powder packet to purify fresh water sources. The Waterbag has 10-liter capacity per use and a 30-minute treatment time after filling the bag and mixing the chemicals. The bag has a drinking tube with an integrated filter.

CAPABILITY RELEVANCE

Water purification or resupply in adverse environments can be extremely difficult but very necessary. DayOne Water Bag is inexpensive, easily trained and meets USEPA emergency drinking water guidelines.

DayOne Water Bag requires one Soldier to operate, has no power requirements and is easily rolled up for storage. The waterbag weighs 1.3 pounds and is capable of reuse 60 times for a total of 600 liters. It can provide water for a team of Soldiers for an extended period of time, reducing logistical burden.

CONTACT INFORMATION

Federal Resources

235-G Log Canoe Cir
Stevensville, MD 21666

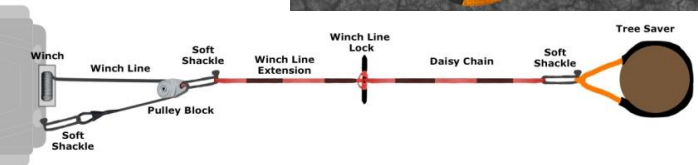
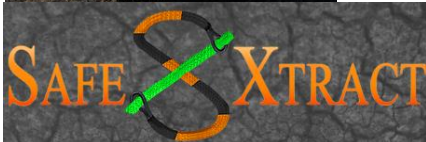
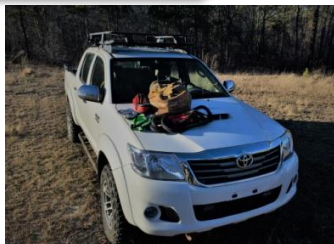
Federalresources.com

POC: Scott Graham

Tel: (770) 570-0943

Email: Scott.graham@federalresources.com

Sponsor – SCoE



CAPABILITY DESCRIPTION

Safe-Xtract Vehicle Recovery Kits are light weight, closed system, all synthetic, engineered to meet or exceed double winch capacity, include safety lanyards, versatile in covering all necessary recovery applications, properly labelled with rated capacities, made in USA, Berry Amendment, BAA and COO compliant.

Safe-Xtract Vehicle Recovery Android Application is Net Warrior approved for NW EUD's and NW OS.

Safe-Xtract Training is provided by I4WDTA Certified Instructors who have additionally qualified as Safe-Xtract Certified Instructors.

CAPABILITY RELEVANCE

Safe-Xtract provides three components necessary to the warfighter:

- 1) **Vehicle Recovery Kits engineered for:**
 - a) Winch Xtraction SLP, DLP, RD
 - b) Traction Xtraction: X configuration
 - c) Momentum Xtraction: V configuration
- 2) **Vehicle Recovery Android Application:**
 - a) Approved by Net Warrior
 - b) Curative – getting safely unstuck
 - c) Preventative – avoiding getting stuck
 - d) Planning – enhanced mission success
- 3) **Training from Certified Instructors**

CONTACT INFORMATION

Federal Resources

235-G Log Canoe Cir
Stevensville, MD 21666

Federalresources.com

POC: Scott Graham

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Email: scott.graham@federalresources.com

Sponsor – MCoE/SOCOM



CAPABILITY DESCRIPTION

CombatConnect is a rugged, lightweight, power-efficient, soldier-worn electronics system:

- distributes data and power to and from devices by having a smart hub
- hub is integrated into the vest or plate carrier, and has a common connector for devices to attach to
- provides power logging of each port

The smart hub:

- allows translation of data format between devices
- allows algorithms to be applied to device values

CAPABILITY RELEVANCE

The military problems that CombatConnect addresses are:

- ease of integration of new devices.
- efficient transfer of data between squad members
- power logging to monitor battery usage by device

The AWCs relating to CombatConnect are:

1. Develop Situational Understanding
19. Exercise Mission Command

CONTACT INFORMATION

Nett Warrior Program Office

10125 Kingman Road
Fort Belvoir, VA 22060

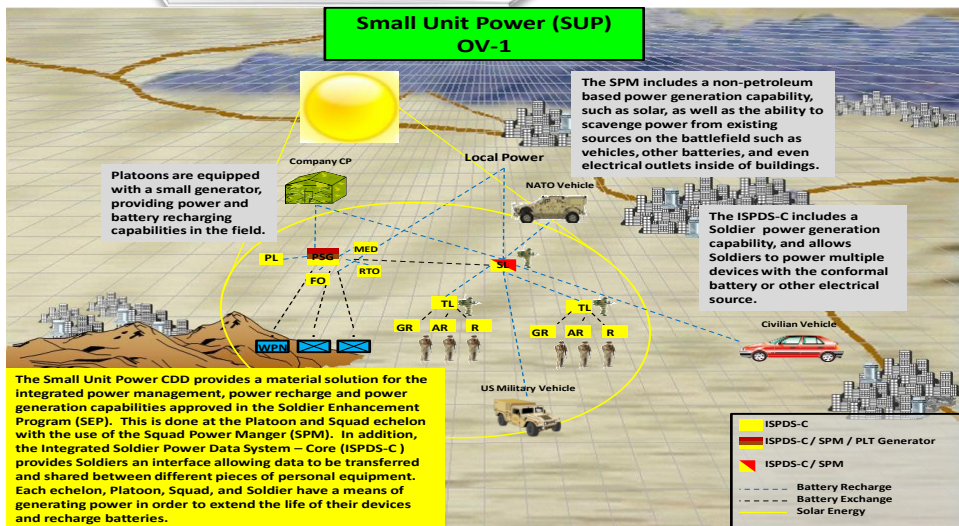
<http://www.peosoldier.army.mil/programs/pmswar/>

POC: MAJ Candice L. Hughes

Tel: (703) 704-4065

Email: candice.l.hughes2@mail.mil

Sponsor – PM SWAR



CAPABILITY DESCRIPTION

The PPG will provide small units with sufficient portable power to sustain Modified Table of Organizational Equipment (MTOE) unit power demand in support of 48 to 72 hour missions; will operate using a common logistical fuel (JP-8). It will be used primarily for charging batteries and powering various small types of Army communications and electronics devices in order to fulfill residual power gaps at the Squad and Soldier level. The PPG will provide power to Brigade Combat Teams (Stryker, Armor and Infantry), Rangers and Special Forces in austere environments.

CAPABILITY RELEVANCE

The PPG is part of the Small Unit Power (SUP) program. The objective of the PPG program is to be able to provide power for recharging operations (using the Universal Battery Charger – UBC; Squad Power manager – SPM) to small units Platoon/Companies in an austere environment where immediate resupply capabilities may not be available for a period of 48 to 72 hours, provide for greater unit self-sufficiency and potentially lighten the load carried by the infantry soldier in an operational environment.

CONTACT INFORMATION

Product Manager, Small Expeditionary Power Sources

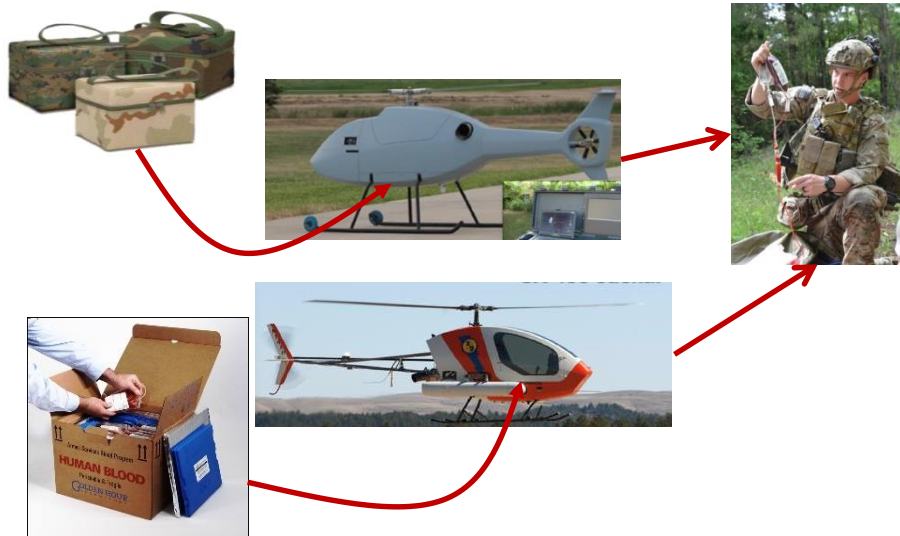
7400 Fullerton Road, Suite 110, 2nd Floor
Springfield, VA 22513

<https://cssportal.kc.army.mil/sites/e2s2/default.aspx>

POC: Ed Larkin

Tel: (703) 337-2091

Email: edward.l.larkin.ctr@mail.mil



CAPABILITY DESCRIPTION

- Emergency delivery of whole blood via Unmanned Air Systems (UAS) to medical personnel at line of departure or at point of injury.
- UAS must be able to deliver, transfer and recover blood products to/from medical personnel

CAPABILITY RELEVANCE

- 75th Ranger Regiment needs UAV supply of whole blood just in time for mission jump-off at remote assembly areas with subsequent recovery of unused blood supplies when objective is secure
- Joint Trauma System and Tactical Combat Casualty Care Guidelines recommend whole blood as product of choice in pre-hospital setting for massively bleeding patients
- Whole blood availability must be maximized while minimizing expiration and destruction of the product

CONTACT INFORMATION

US Army Medical Materiel Development Activity

1430 Veterans Drive (MCMR-UMA)

Fort Detrick, MD 21702-5009

www.usammmda.army.mil

POC: Jake Fox

Tel: (301) 619-4533

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V300



V10AIO



CAPABILITY DESCRIPTION

- Veragon V10 All In One (code:V10AIO)
- Small, portable, MIL STD appliances allowing water production with maximum quality and minimum cost.
- Operational 'bandwidth': 15-45°C / 20-100% RH
- Disinfection achieved by UV-C and micro dosage of chlorine.
- Power consumption is about 8 kW/h.
- Noise rating about 64 db
- Unit frame stainless steel AISI 304 (177cm High / 190cm Wide / 219cm Long / 1000 kg when empty).
- Quality water compliance standard: World Health - Organization, FAO - United Nations, Rome 2007

CAPABILITY RELEVANCE

- A viable alternative to other water supply systems (bottled water, RO, desalination, boreholes) aiding military water supply and reducing the logistical distribution foot print.
- Veragon V10AIO can produce, up to 1000 liters of water a day.
- Fully deployable. Built to a highly robust specification.
- Fully transportable via C-130, or under-slung, or trailer/flatbed mounted.
- V10AIO is equipped with the V300 treatment unit, which cleans 'fresh' water from wells or other sources at 300 litres/hour.

CONTACT INFORMATION

Veragon

8 St James's Square
London, SW1Y 4JU

www.veragon.com

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Email: vancutsem@veragon.com

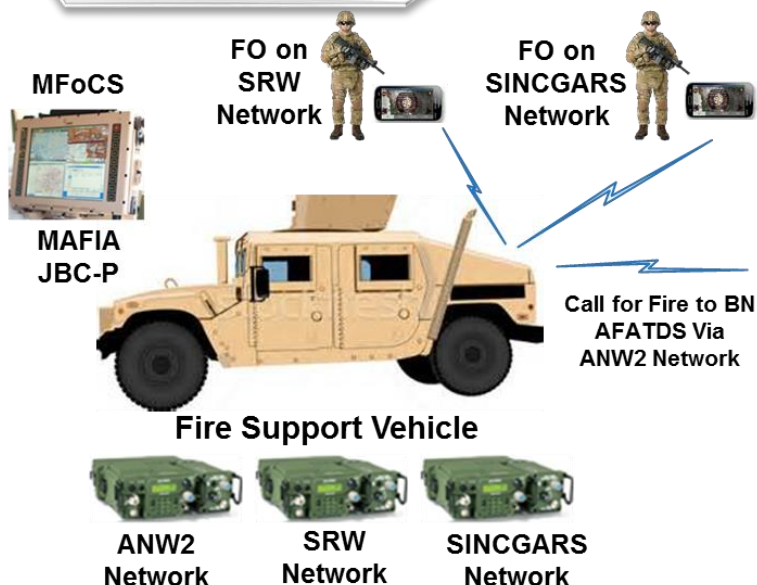
Sponsor – SCoE

Expeditionary Tactical Network Lead – CCoE

Experiment Objective #5: How can the Army engineer the tactical network to reduce user complexity, improve capacity, increase resiliency, maximize bandwidth efficiency, enable dynamic reconfiguration, improve cybersecurity, while becoming expeditionary?

Examples

- RF signature masking of the combat tactical network
- GEO location capability for POR radios
- Communicate locally through a denied environment



CAPABILITY DESCRIPTION

- 100% Government Owned Software
- Hardware agnostic (future hardware migration)
- Employs the AMRDEC Army Global Engine software - similar to Google Earth Engine
- Applies the AMRDEC Terrain Association algorithm to determine heading and provide User immediate orientation into surrounding terrain.
- Employs NAVAIR unclassified rPFI (Precision Fires Imagery)
- Exploits SUAS & Soldier Borne Sensor FMV
 - Displays FMV and location cursor on AGE
 - Direct control of the UAS from the MAFIA user interface

CAPABILITY RELEVANCE

MAFIA participation in AEWE 18 will include both the mounted MAFIA configuration (Precision Fires – Mounted) where MAFIA installed on a Mounted Family of Computer Systems (MFoCS) mounted on a HMMWV as a surrogate Fire Support Vehicle and the dismounted MAFIA configuration (Precision Fires – Dismounted) where MAFIA is installed on an End User Device.

The mounted FSO/FSNCO will operating on an ANW2 BN Fires Net, one dismounted FO will operate on SRW CO Fires Net, and one dismounted FO will operate on a SINCGARS CO Fires Net.

CONTACT INFORMATION

AMRDEC

Aviation Missile Research Development and Engineering Center (AMRDEC) – US Army

POC: Jonathan Porter

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Email: jonathan.s.porter.ctr@mail.mil

Sponsor – MSCoE

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UNCLASSIFIED

CAPABILITY DESCRIPTION

- Relays PLI data over Iridium satellite network when SRW network connectivity is not available
- Autonomous operation selects best path for PLI routing without user intervention
- Self contained, lightweight module that attaches to PRC-154 (A, B, C) radios
- Glenair connector for pass-thru network connectivity between Nett Warrior and radio
- Simple provisioning and minimal training for the Warfighter.



CAPABILITY RELEVANCE

- Radio failure or loss of SRW network connectivity adversely impacts distribution of PLI for blue force tracking (BFT).
- The SB-I module detects radio/network status and begins transmitting PLI over the Iridium network to reconnect PLI data via an alternative data path to maintain situational awareness.
- The SB-I capability creates a PLI “bridge” for a squad(s) that have lost connectivity to the platoon SRW network.

CONTACT INFORMATION

DataSoft Corp.

1275 W. Washington Street, #106

Temp, AZ 85281

www.datasoft.com

POC: John Bohlke

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Email: john.bohlke@datasoft.com

Sponsor – Cyber CoE

CAPABILITY DESCRIPTION

- L3 Technologies will demonstrate a low SWaP datalink that operates in contested and denied environments that is AJ/LPD with Quality of Service (QoS) queuing and prioritization of data.
- User applications continue to work as the operating environment degrades. When the conditions no longer support higher bandwidth applications, traffic for those applications is no longer sent over the networking allowing the lower bandwidth applications to still work.

CAPABILITY RELEVANCE

- Current denied and contested environments deny or degrade radio communication.
- Assured Communications allows warfighters to communicate and exchange data without being detected by adversaries and addresses the following AEWE objectives:
 - RF signature masking of the combat tactical network.
 - Communicate locally through a denied environment.

CONTACT INFORMATION

L3 Technologies

640 N 2200W

Salt Lake City, UT 84116

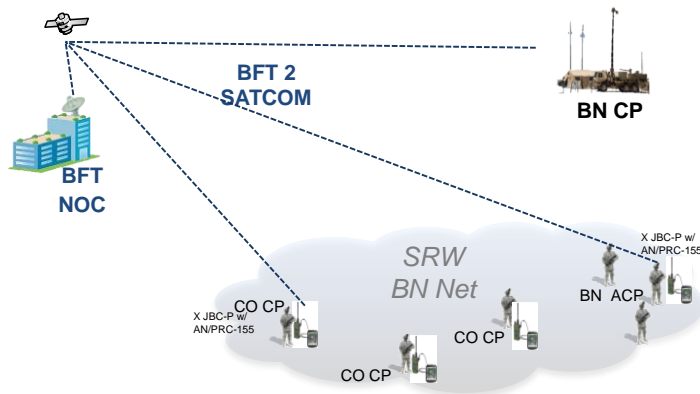
www.l3t.com

POC: Grant Webb

Tel: (801) 606-0537

Email: Grant.Webb@L3T.com

Sponsor – Cyber CoE



CAPABILITY DESCRIPTION

XJBC-P is a man-packable version of the mounted JBC-P system designed for use by dismounted forces in operational environments and missions when vehicle platforms are not available. System weighs 41 pounds and consists of a transceiver, KGV-72 in-line encryption, computing device, and power solution. Mounts on the MOLLE system and current ruck sacks for ease of access and shorter implementation times. Provides a BLOS capability for messaging, SA, and mission command. When used with a SRW radio can link Nett Warrior into the wider COP.

CAPABILITY RELEVANCE

The X JBC-P should be packaged onto a soldier's rucksack in accordance with procedures established at the beginning of the experiment. The capability should serve as a primary dismounted Mission Command capability for the BN/CO in support of both Live Fire and the Force on Force portions of the experiment. The capability should be used in all weather and light conditions and the recommended number is one per BN/CO.

CONTACT INFORMATION

Product Manager Joint Battle Command-Platform

3rd Floor, 6007 Combat Drive
Aberdeen Proving Ground, MD 21005
<http://peoc3t.army.mil/mc/jbcp.php>

POC: Philip Bird
Tel: (443) 243-5425
Email: philip.r.bird.ctr@mail.mil

Sponsor – Cyber CoE

End User Device



ARMY Supplied Transport Layer



Power



Cables & Connector



Chest Pouch



Capacitive Gear



CAPABILITY RELEVANCE

Currently, units lack a fully integrated mission command network that can bring aerial and ground sensor data to the dismounted leader to enable mission command and complete the common operational picture (COP). The current dismounted Army network provides disconnected intermittent and limited (DIL) bandwidth to the tactical edge limiting the capabilities for geographically dispersed forces. NWFI sets the conditions to bring higher bandwidth, more robust, agile, and reliable networks to the tactical edge.

CONTACT INFORMATION

Program Manager Soldier Warrior

10125 Kingman Rd., Bldg 317
Fort Belvoir, VA 22060

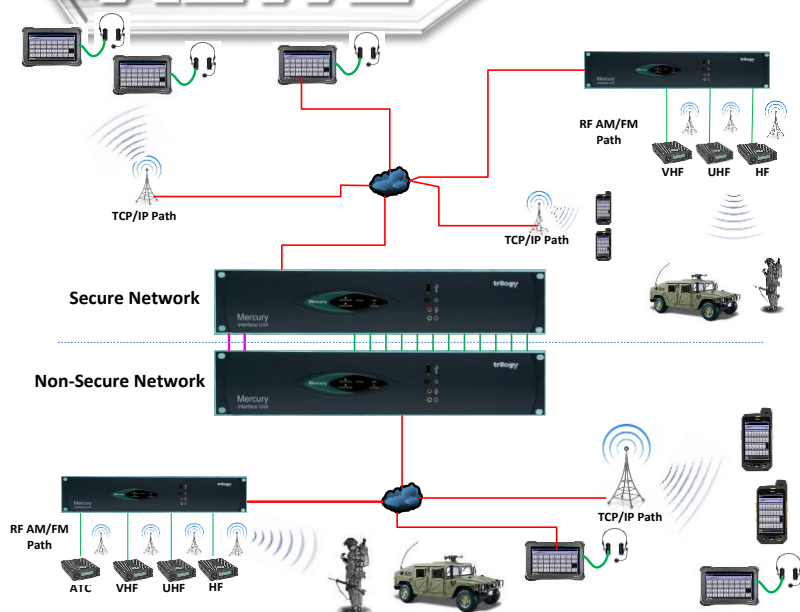
POC: MAJ David Bergmann

Assistant Product Manager Ground Soldier Systems

Tel: (703) 704-2968

Email: david.h.bergmann.mil@mail.mil

Sponsor – PM SWAR



CAPABILITY DESCRIPTION

- Patented technology allows voice comms to traverse IP networks at different security levels without compromising IP security.
- Multi-channel, COTS platform that operates on LANs/WANs over terrestrial or satellite-based IP networks offering potentially global coverage.
- Full interoperability between multiple comm devices providing users with a single, unified voice communications control panel with unmatched flexibility, capacity and efficiency.
- 2U rack-mountable units (19" X 14.5" X 3.5" and up to 12.6 lbs fully equipped).

CAPABILITY RELEVANCE

- Secure and efficient voice communications are critical on the battlefield.
- Currently, units lack the ability to conduct real-time two way (one to one, one to many or full conference call) communications especially across different security domains.
- Results: dramatic loss of situational awareness and its subsequent effects on expeditionary operations.
- This capability is designed to provide soldiers high capacity, distributed and highly secure comms over IP networks. This capability applies to Army Warfighting Challenge one and seven.

CONTACT INFORMATION

Trilogy USA, a ClearCom Company
 1301 Marina Village Parkway, Ste. 105
 Alameda, CA 94501
<http://www.Clearcom.com>
<http://www.trilogycomms.com>

POC: Corey Frasure
 Tel: (510) 337-6669
 Email: Corey.Frasure@Clearcom.com

Sponsor – Cyber CoE

Small Unit Situational Understanding Lead – ICoE

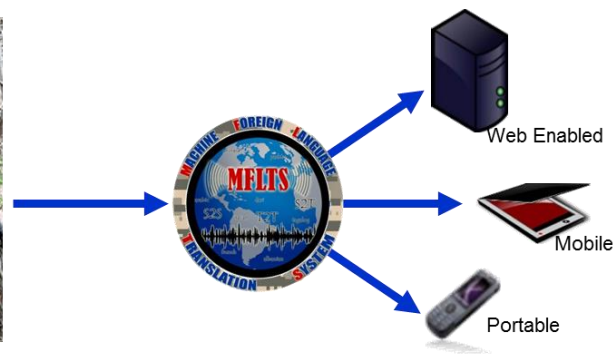
Experiment Objective #6: How does the intelligence enterprise improve and facilitate the processing, exploiting, and dissemination of intelligence products in order to provide the Commander with situational understanding while operating in a complex environment?

Examples

- Sensor computing environment
- Dynamic situational understanding
- Interoperability with coalition partners

CAPABILITY DESCRIPTION

MFLTS is a software application that provides a basic automated foreign speech and text translation capability. The application is integrated into U.S. Army Information Systems (IS) to augment and complement human linguistic resource limitations across all Army echelons in all environments.



CAPABILITY RELEVANCE

MFLTS is an application that will reside on the DCGS-A future version 3.2.5 and CHARCS future version 1.0.4.4. Soldiers equipped with DCGS-A can translate foreign language documents, both text and image files, using the MFLTS Text-to-Text Translation Application to support situational understanding. Soldiers equipped with CHARCS can speak with foreign language speakers for screening and basic information, and translate foreign language documents. MFLTS is an enabler for intelligence processing, exploitation and dissemination (PED) supporting situational awareness and understanding.

CONTACT INFORMATION

U.S. Army Intelligence Center of Excellence

TCM Terrestrial and Identity

ATTN: ATZS-CDI-BF

Bldg. 80011, Carter St.

Ft. Huachuca AZ 85613

<https://ikn.army.mil/apps/IKNWMS/Home/WebSite/TCMTerrestrialandIdentity>

POC: Tracy Blocker

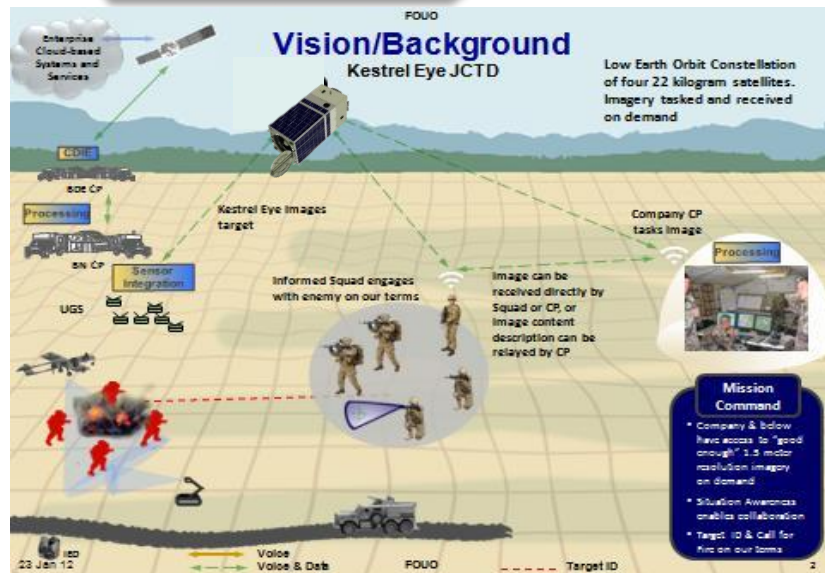
Tel: (520) 454-1842

Email: Everett.t.blocker.ctr@mail.mil

Sponsor – ICoE

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UNCLASSIFIED



CAPABILITY DESCRIPTION

Kestrel Eye (KE) is EO imagery microsatellite that:

- Tasked directly from theater brigade combat team
- Produces imagery for near real-time situational awareness direct to the brigade level
- Leverages theater network without any CONUS relay
- Objective constellation supports overhead persistence
- For objective KE, gnd footprint requires only 2.4 m antenna & a laptop at the Brigade level

CAPABILITY RELEVANCE

Kestrel Eye supports:

- Rapid situational awareness imagery directly to the tactical warfighter
- FY16 CNA Gaps 500344.3, 500454.4, 501047, 501081, 501222, 501343
- KE program supports Army Warfighting Challenges #1 Develop Situational Awareness, #13 Conduct Wide Area Security, #17 Integrate Fires, #18 Deliver Fires, and #19 Exercise Mission Command

CONTACT INFORMATION

US Army Space and Missile Defense Command

Martin Road, Building 5220
Redstone Arsenal, AL 35898

<https://www.army.mil/info/organization/unitsandcommands/commandstructure/smdc/>

POC: Chip Hardy

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Email: wheeler.k.hardy.civ@mail.mil

Sponsor – SMDC

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UNCLASSIFIED